ALLIANCE FOR EXCELLENT EDUCATION

Well *and* Well-Off:
Decreasing Medicaid and Health-Care Costs by Increasing Educational Attainment

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Higher levels of education are strongly connected to better health outcomes.[1] Conversely, individuals with lower income, less education, and lower-status occupations and employment tend to have poorer health than their counterparts with more education and correspondingly higher incomes.[2] Raising educational-attainment levels would be expected to reduce health-related expenditures for the public, as well as for individuals.

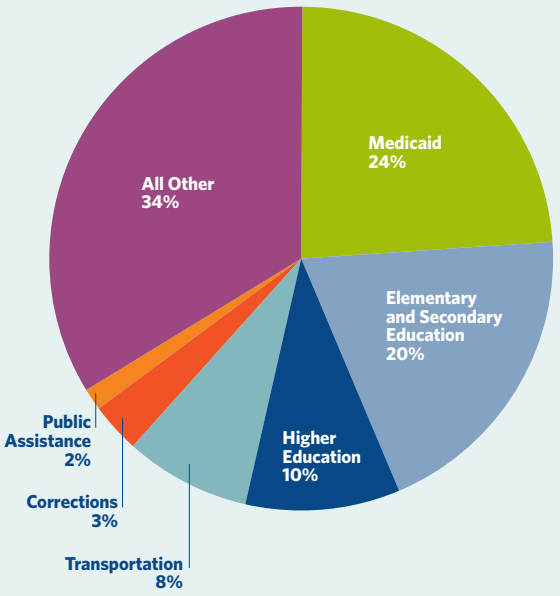
Education and Medicaid spending are significant portions of state budgets. In Fiscal Year 2011, K–12 education was the largest portion of state general fund spending at 35 percent; Medicaid was the next-largest portion with 17 percent.[3] In the same fiscal year, Medicaid alone accounted for approximately 24 percent of estimated total state spending, which also includes federal spending.[4] The Patient Protection and Affordable Care Act (the ACA), which was signed into law in 2010, is expected to have a significant impact on health care in the United States. The ACA is also expected to increase state Medicaid expenditures by at least $68 billion over the next decade.[5] Federal and state policymakers searching for means to address health-care costs could produce billions in health care–related savings for taxpayers simply by directing legislative efforts at improving educational outcomes and increasing graduation rates.

In 2006, Dr. Peter Muennig, of Columbia University, conducted the Alliance's initial analysis of the connection between health-care savings and education, which shows that students who graduated from high school instead of dropping out before earning a diploma would likely save states an average of $16,113 per graduate (in 2012 dollars) in Medicaid and expenditures for uninsured care over the course of his or her lifetime.[6] In 2012 alone, the nation's population contained an estimated 35 million high school noncompleters;[7] the United States could have saved significant health-care expenditures for decades by ensuring that more students received both a quality education and a high school diploma. Worth noting is that the available data on statewide educational attainment do not distinguish between those who graduated from high school and those who completed a GED. For the purposes of this report, the two groups are combined for analysis. The Alliance recognizes that on average there are differences in outcomes, such as wages and lifetime earnings between high school graduates and GED recipients;[8] consequently, the goal for every student should be to graduate from high school.

Due to ongoing implementation of the ACA, Muennig is not currently able to update his lifetime estimates of health care–related savings using the economic model he previously employed. However, there are other ways to view potential savings; rather than looking forward, this paper calls out savings that could have been.

Across the United States, approximately 15 percent of all individuals age twenty-five or older are high school nongraduates. If 50 percent of those adults had graduated from high school, the United States could have saved more than $7 billion in Medicaid costs in 2012 alone, based on current Medicaid take-up rates for high school noncompleters. This estimate is based on the different Medicaid usage rates between high school graduates and high school dropouts. Moreover, further Medicaid savings would be realized for each subsequent year following these students receiving their diplomas. Further, the savings would accrue for every subsequent class of high school students that increases the number of graduates. This would produce an annual repetition of this significant economic impact. Completing high school would also translate into better health and improved life prospects for the nation's citizens.

Estimated Total State Spending*
Fiscal Year 2011



* Includes federal funds. Source: National Governors Association and National Association of State Budget Officers, 2011

Increased Levels of Education Improves Health

Each year, state budgets bear the cost of Medicaid and uncompensated health expenditures incurred by low-income and uninsured Americans. States' health-care costs could be greatly reduced if more students graduated from high school and college and were ready for a career. These savings would not be realized immediately, since most eighteen-year-olds, high school graduates or not, do not incur high medical costs. Like any good investment, however, increasing the number of graduates pays off in later years. Had the investment been made many years ago to have more students earn diplomas, the United States would be realizing major savings in health-related costs today.

Higher educational attainment increases a student's future income, occupational status, and social capital, all of which contribute to improved health.[9] The United States spends more than any other country on health care,[10] and many Americans have access to some of the finest physicians and facilities in the world. However, Americans do not benefit equally from the care that is available. The disparities closely align with socioeconomic status; however, they correlate most closely with educational attainment.[11] A variety of interrelated factors explain this relationship.

In 2011, there were 48.6 million people, or 15.7 percent of the nation's population, who had no health insurance.[12] Individuals with low levels of educational attainment are considerably less likely to have health insurance coverage.[13] For example, in 2003, nearly two-thirds of the country's uninsured had no college education; those without college education were also more likely to have limited or erratic coverage, or to be uninsured for long periods of time.[14] In many states, few adults (ages 18–64) are eligible for Medicaid coverage unless they have children in their household. This will change in 2014 when more reforms related to the ACA go into effect.[15] This expansion of Medicaid means that there will likely be even more Medicaid-specific savings to be gained from increasing educational-attainment levels and keeping more people off of the Medicaid rolls. As noted previously, this analysis does not project economic benefits or savings beyond the passage of the ACA.

It is well documented that individuals lacking health insurance receive less medical care and have poorer health outcomes than those with insurance. Prior to passage of the ACA, adults who did not qualify for Medicaid programs often found health insurance difficult to obtain or pay for. Uninsured adults with chronic illnesses are far less likely to receive care and necessary prescriptions than insured adults.[16] These individuals are generally in poorer health when first diagnosed with an illness, and the combination of late diagnosis and less-consistent care leads to poorer—and more expensive—outcomes.[17]

A destructive combination develops when poor educational attainment leads to poor health outcomes, and both lead to poor economic prospects. Those in poor health and without insurance often have more difficulty finding employment, particularly higher-paying jobs with good health benefits, and they have more difficulty affording health care. As a result, these individuals' illnesses are often more severe and they tend to die younger than do insured people.[18]

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The ACA is still in its early implementation, but its individual mandate is expected to both expand insurance coverage and reduce the levels of "uncompensated care" that hospitals have to absorb.[19] Even after ACA is fully implemented, there will still be many uninsured Americans nationwide.[20] Some of these individuals may continue to face lingering medical issues related to their previous inability to afford health insurance. With more education and consequently higher incomes, many uninsured Americans could potentially have avoided these negative health outcomes.

Education leads to healthier lives.

Increased educational attainment yields more than just access to health insurance; it improves individuals' earning power and social status and affects their cognitive ability.[21] These factors influence lifestyle choices, knowledge and understanding of health issues, and health-related decisions that people make. Those with higher educational attainment are more able to follow doctors' instructions successfully and navigate medical bureaucracy. In addition, the occupations of people with lower educational attainment are generally more dangerous and expose workers to greater health hazards, such as operating heavy machinery, handling dangerous chemicals, and working shifts that disrupt sleep cycles.[22]

The correlation between educational attainment and adverse health disparities is striking. For example, adults with low educational attainment are more likely to die prematurely from cardiovascular disease, cancer, infection, lung disease, and diabetes.[23] On average, a high school graduate lives six to nine years longer than a high school dropout.[24]

Calculating Savings on Health Care by Improving Educational Attainment

In a previous report, the Alliance notes that because people with higher educational attainment are less likely to receive Medicaid assistance and more likely to be insured, costs decrease with each level of educational attainment—that is, college graduates have better health and lower medical costs than high school graduates, while high school graduates have better health and lower medical costs than high school dropouts.[25]

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In a recent analysis commissioned by the Alliance for Excellent Education, Muennig estimates how much states could save on health care by improving educational-attainment outcomes. Specifically, he examined the ways in which usage of Medicaid varies depending on one's educational attainment. Muennig also conducted individual analyses of savings related to obesity, smoking, alcoholism, and heart disease as well as an analysis of the broader savings to society that could be realized from increased worker productivity, reclaimed leisure time, decreased uncompensated care costs from uninsured individuals seeking medical treatment, and reduced pain and suffering due to disease if more students graduated from high school.

Using data from the 2009–10 NHANES (National Health and Nutrition Examination Survey) and controlling for gender, race, and age, Muennig estimates the impact of high school graduation on Medicaid enrollment. Muennig's findings showed that a high school graduate's odds of using Medicaid compared to a high school dropout's were 0.5, meaning that if a student graduates from high school rather than dropping out, the likely Medicaid costs for that person will be reduced by 50 percent, assuming that the risk of being on Medicaid among noncompleters is roughly the same regardless of where they live. Similar results were also found in randomized trials of education interventions that had very small samples and narrow interventions and geographic locations.[26] As mentioned earlier, high school graduates and GED recipients are combined for the purposes of this analysis as "completers." The odds of Medicaid enrollment between high school graduates and GED recipients were not significantly different in the calculations informing Muennig's results.

Substantial Health-Care Savings Would Be Realized

Medicaid enrollment requirements and the federal contribution differ in each state. However, in 2010, the average Medicaid cost per enrollee across federal and state levels in the United States was $3,408 (adjusted to 2012 costs). Increasing the graduation rate decreases the number of Medicaid recipients, which saves money on Medicaid. In his analyses, Muennig estimates what each additional high school noncompleter costs each state.[a]

If states had more high school graduates, the potential Medicaid-related savings would be substantial. If 50 percent of a state's noncompleters were high school graduates, the Alliance estimates that the nation as a whole would have saved nearly $7.3 billion in just one year, including more than $900 million in preventative expenses related to heart disease, $1.9 billion related to obesity, $1.4 billion related to alcoholism, and nearly $2 billion from reduced smoking and tobacco use. Every state in the nation would save at least $5 million in Medicaid expenditures from these new graduates, and California and New York would both stand to save more than $1 billion each.

Table 1. Disease-Specific Societal Savings from Reducing the Nation's Dropouts by 50 Percent

Heart Disease	$11.9 billion
Obesity	$11.9 billion
Smoking	$8.9 billion
Alcoholism	$6.4 billion

The savings to society as a whole are even larger than the Medicaid-related savings from improved health. Societal costs include the impact of a disease or condition on one's productivity at work, the monetary value of lost leisure time, and estimates of the value of pain and suffering caused by disease.[27] The cost savings to society from reducing incidences of obesity, heart disease, smoking, and alcoholism are well into the billions. Table 1 shows the savings that would have been realized in 2012 if the number of the nation's high school noncompleters had been cut in half.

There are also other savings related to health care that are not covered by this methodology. This work examines savings derived from aggregate Medicaid spending and from specific diseases.[b] There are other potential areas to consider in the future, including the savings from decreased health insurance rates resulting from fewer instances of the uncompensated care that drive up medical prices for full payers. So while the savings explored in the scope of this work are impressive, they represent only the beginning of the health benefits derived from higher levels of educational attainment.

[a] To determine potential Medicaid savings for each state if high school dropouts graduated, Muennig calculates the difference in probability of an individual enrolling in Medicaid as he or she becomes a graduate rather than a dropout. Each state's specific contribution to Medicaid was incorporated into these calculations. This state-specific data produced an estimate of what would be saved for each additional high school graduate; total savings estimates for states and the nation as a whole were also produced. Stated another way, Muennig estimates what each additional high school noncompleter would have cost each state. Differences in contributions to Medicaid cause the annual savings per graduate to vary and savings per graduate range considerably by state, from a low of $777 in Utah to a high of $2,482 in Massachusetts.

[b] This analysis looks at Medicaid spending in the aggregate. Because specific line items such as nursing-home care are not broken out, it is possible that separate analyses of the take-up rate for specific items may not be affected by educational attainment, and therefore could result in variation in the overall estimates presented here. The cumulative effects of better health over a lifetime due to increased educational attainment will extend people's lives, but they may also lower utilization of expensive services as people get older.

Well *and* Well-Off

Increasing rates of educational attainment improves health outcomes for individuals and for society as a whole. In the United States, health-care expenditures are a significant portion of budgets at the state and federal levels. Health care is bound to be in the policy spotlight as the Affordable Care Act continues to be implemented over the next decade. In the national effort to reduce health-care costs while improving health outcomes, dramatically increasing the number of high school graduates is a meaningful strategy; it is a strong economic stimulus in terms of increased purchasing power, home and auto sales, and productivity, but it can also reduce the number of trips to the doctor or hospital. As the nation graduates more students, it will become both well *and* well-off.

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For more information about the state of America's high schools and to find out what individuals and organizations can do to support effective reform at the local, state, and federal levels, visit the Alliance for Excellent Education's website at www.all4ed.org.

Appendix A: 2012 General and Disease-Specific Medicaid Savings from Reducing High School Noncompleters by 50 Percent*

State	Medicaid Savings	Heart Disease–Related Medicaid Savings	Obesity-Related Medicaid Savings	Alcoholism-Related Medicaid Savings	Smoking-Related Medicaid Savings
U.S. (National)	**$7,295,331,262**	**$936,004,766**	**$1,912,997,975**	**$1,447,368,421**	**$1,957,283,997**
AL	$69,096,891	$8,865,261	$18,118,740	$13,708,583	$18,538,190
AK	$12,977,610	$1,665,052	$3,403,018	$2,574,713	$3,481,798
AZ	$129,781,952	$16,651,269	$34,031,712	$25,748,289	$34,819,548
AR	$51,046,613	$6,549,377	$13,385,556	$10,127,471	$13,695,433
CA	$1,021,936,768	$131,116,416	$267,974,530	$202,748,711	$274,178,157
CO	$55,210,213	$7,083,575	$14,477,345	$10,953,515	$14,812,496
CT	$82,576,215	$10,594,684	$21,653,319	$16,382,835	$22,154,594
DE	$19,318,534	$2,478,604	$5,065,749	$3,832,730	$5,183,021
DC	$18,141,145	$2,327,543	$4,757,011	$3,599,140	$4,867,137
FL	$286,641,147	$36,776,600	$75,163,679	$56,868,609	$76,903,722
GA	$111,341,953	$14,285,383	$29,196,334	$22,089,857	$29,872,231
HI	$16,866,555	$2,164,011	$4,422,786	$3,346,266	$4,525,173
ID	$12,787,084	$1,640,607	$3,353,057	$2,536,913	$3,430,681
IL	$265,398,885	$34,051,178	$69,593,485	$52,654,218	$71,204,579
IN	$68,391,104	$8,774,708	$17,933,667	$13,568,558	$18,348,833
IA	$28,557,971	$3,664,042	$7,488,535	$5,665,802	$7,661,895
KS	$26,456,061	$3,394,363	$6,937,367	$5,248,791	$7,097,968
KY	$75,517,318	$9,689,014	$19,802,319	$14,982,374	$20,260,744
LA	$119,102,494	$15,281,075	$31,231,321	$23,629,522	$31,954,328
ME	$21,193,397	$2,719,153	$5,557,380	$4,204,697	$5,686,033
MD	$107,116,428	$13,743,240	$28,088,308	$21,251,528	$28,738,554
MA	$166,408,785	$21,350,561	$43,636,082	$33,014,926	$44,646,259
MI	$121,606,795	$15,602,381	$31,888,004	$24,126,366	$32,626,213
MN	$82,530,228	$10,588,784	$21,641,260	$16,373,711	$22,142,256
MS	$52,379,623	$6,720,404	$13,735,101	$10,391,935	$14,053,069
MO	$102,061,795	$13,094,721	$26,762,871	$20,248,706	$27,382,433
MT	$7,068,839	$906,945	$1,853,607	$1,402,433	$1,896,518
NE	$18,332,837	$2,352,138	$4,807,277	$3,637,171	$4,918,566
NV	$29,754,564	$3,817,567	$7,802,308	$5,903,202	$7,982,932
NH	$15,481,237	$1,986,272	$4,059,524	$3,071,424	$4,153,502
NJ	$161,030,990	$20,660,580	$42,225,904	$31,947,990	$43,203,436
NM	$45,522,858	$5,840,669	$11,937,105	$9,031,577	$12,213,450
NY	$1,022,894,992	$131,239,357	$268,225,798	$202,938,819	$274,435,242
NC	$156,847,932	$20,123,886	$41,129,013	$31,118,086	$42,081,152
ND	$7,157,723	$918,349	$1,876,914	$1,420,067	$1,920,365
OH	$175,944,212	$22,573,974	$46,136,482	$34,906,721	$47,204,545
OK	$53,072,792	$6,809,339	$13,916,865	$10,529,458	$14,239,042
OR	$42,053,148	$5,395,498	$11,027,270	$8,343,199	$11,282,552
PA	$262,222,281	$33,643,613	$68,760,509	$52,023,991	$70,352,319
RI	$36,914,454	$4,736,194	$9,679,790	$7,323,700	$9,903,878
SC	$66,251,096	$8,500,141	$17,372,510	$13,143,988	$17,774,684
SD	$8,052,620	$1,033,166	$2,111,576	$1,597,612	$2,160,459
TN	$126,538,713	$16,235,156	$33,181,263	$25,104,842	$33,949,411
TX	$547,104,606	$70,194,553	$143,462,985	$108,543,656	$146,784,162
UT	$11,767,230	$1,509,758	$3,085,629	$2,334,578	$3,157,062
VT	$12,391,728	$1,589,882	$3,249,386	$2,458,476	$3,324,610
VA	$112,370,961	$14,417,406	$29,466,163	$22,294,009	$30,148,307
WA	$90,933,204	$11,666,902	$23,844,707	$18,040,832	$24,396,713
WV	$30,908,334	$3,965,598	$8,104,852	$6,132,106	$8,292,480
WI	$68,197,926	$8,749,923	$17,883,012	$13,530,232	$18,297,005
WY	$5,846,288	$750,090	$1,533,027	$1,159,883	$1,568,516

Appendix B: 2012 Disease-Specific Societal Savings from Reducing High School Noncompleters by 50 Percent*

State	Heart Disease–Related Societal Savings	Obesity-Related Societal Savings	Alcoholism-Related Societal Savings	Smoking-Related Societal Savings
U.S. (National)	**$11,973,659,490**	**$11,917,125,000**	**$6,383,887,500**	**$8,941,597,500**
AL	$229,622,600	$228,538,421	$122,425,800	$171,475,802
AK	$15,302,141	$15,229,891	$8,158,504	$11,427,216
AZ	$262,585,066	$261,345,252	$140,000,100	$196,091,260
AR	$135,784,939	$135,143,821	$72,395,225	$101,400,434
CA	$1,845,849,181	$1,837,133,872	$984,134,677	$1,378,429,079
CO	$141,089,276	$140,423,113	$75,223,291	$105,361,567
CT	$107,900,058	$107,390,600	$57,528,096	$80,576,777
DE	$30,150,621	$30,008,263	$16,075,134	$22,515,650
DC	$23,012,611	$22,903,955	$12,269,425	$17,185,181
FL	$745,374,732	$741,855,392	$397,404,690	$556,625,219
GA	$404,068,828	$402,160,988	$215,433,715	$301,747,417
HI	$35,234,064	$35,067,704	$18,785,427	$26,311,824
ID	$46,106,055	$45,888,362	$24,581,947	$34,430,726
IL	$458,908,116	$456,741,348	$244,671,880	$342,699,879
IN	$228,966,928	$227,885,844	$122,076,222	$170,986,164
IA	$77,318,154	$76,953,091	$41,223,020	$57,739,058
KS	$76,697,259	$76,335,127	$40,891,982	$57,275,390
KY	$213,279,914	$212,272,897	$113,712,518	$159,271,536
LA	$218,508,386	$217,476,683	$116,500,136	$163,176,015
ME	$36,580,030	$36,407,315	$19,503,043	$27,316,954
MD	$182,028,573	$181,169,112	$97,050,524	$135,933,900
MA	$197,224,290	$196,293,081	$105,152,287	$147,281,641
MI	$313,026,192	$311,548,216	$166,893,337	$233,759,296
MN	$119,015,781	$118,453,839	$63,454,565	$88,877,691
MS	$150,535,391	$149,824,627	$80,259,590	$112,415,663
MO	$212,760,949	$211,756,383	$113,435,827	$158,883,988
MT	$23,717,035	$23,605,053	$12,644,997	$17,711,225
NE	$47,454,889	$47,230,827	$25,301,093	$35,437,998
NV	$112,912,504	$112,379,380	$60,200,536	$84,319,933
NH	$32,574,073	$32,420,273	$17,367,223	$24,325,416
NJ	$288,433,345	$287,071,487	$153,781,392	$215,394,039
NM	$91,743,621	$91,310,447	$48,914,115	$68,511,597
NY	$804,269,981	$800,472,563	$428,805,336	$600,606,561
NC	$402,374,277	$400,474,438	$214,530,246	$300,481,973
ND	$18,678,095	$18,589,905	$9,958,430	$13,948,284
OH	$380,578,609	$378,781,680	$202,909,647	$284,205,571
OK	$141,156,219	$140,489,740	$75,258,982	$105,411,558
OR	$114,004,443	$113,466,163	$60,782,716	$85,135,363
PA	$424,940,544	$422,934,157	$226,561,698	$317,333,837
RI	$45,963,432	$45,746,413	$24,505,907	$34,324,219
SC	$206,287,555	$205,313,553	$109,984,466	$154,049,836
SD	$22,054,305	$21,950,174	$11,758,494	$16,469,545
TN	$287,193,399	$285,837,395	$153,120,301	$214,468,081
TX	$1,269,036,941	$1,263,045,092	$676,600,923	$947,681,663
UT	$61,194,980	$60,906,043	$32,626,773	$45,698,717
VT	$16,220,776	$16,144,189	$8,648,284	$12,113,227
VA	$290,788,135	$289,415,158	$155,036,874	$217,152,531
WA	$180,278,364	$179,427,167	$96,117,381	$134,626,893
WV	$90,273,665	$89,847,431	$48,130,392	$67,413,874
WI	$155,346,847	$154,613,366	$82,824,871	$116,008,726
WY	$12,678,399	$12,618,537	$6,759,627	$9,467,877

*Health-related savings were calculated by Muennig, who estimates the odds (using logistic regression) of Medicaid enrollment of high school completers (defined as a high school graduate or GED recipient) and high school dropouts.[28] Data on state proportions of high school completers come from the National Center for Education Statistics.[29] Overall Medicaid disease costs savings in state y associated with increasing enrollment by *Z* are calculated as: *My = Cy • Ny • Z • (1-O)*, where *My* = Medicaid costs in state *y*, *Ny* = the proportion of noncompleters in state *y*, *Cy* = per capita Medicaid spending in state *y*, and *O* is the national odds that a completer will be enrolled in Medicaid. To estimate disease-specific costs, *My* is divided by the odds that a completer will have the disease or condition under study relative to a noncompleter. Societal disease cost savings associated with producing additional high school completers for condition *x* in state *y* are calculated as *Iy = Cx • (1-0) • P*, where *I* = the incremental savings associated with transitioning noncompleters to completers, *C* = the total societal costs associated with condition *x*, *0* = the odds of condition *x* among high school completers relative to noncompleters, and *P* is the proportion of the population at risk of incurring the costs. In this case, the odds are approximately equal to the risk, and thus odds are assumed to be equivalent to risk in this scenario. The proportion of the population at risk of incurring the costs is calculated as *P = Sy • Ny • Z*, where *S* = the proportion of all Americans age 18 and over in state *y*, and *Ny* = the proportion of noncompleters in state *y*. This analysis accounts for state-by-state variation in the proportion of Medicaid paid for by the state government and the proportion paid for by the federal government. However, it does not account for state-by-state differences in state-by-state variation in disease prevalence, medical costs, disease severity, and wages. However, not all of the data is available at the state level for all of the diseases and conditions listed here.

Endnotes

1. D. M. Cutler and A. Lleras-Muney, *Education and Health: Evaluating Theories and Evidence* (Cambridge, MA: National Bureau of Economic Research, 2006), http://www.nber.org/papers/w12352 (accessed February 26, 2013); L. Feinstein et al., "What Are the Effects of Education on Health?," in *Measuring the Effects of Education on Health and Civic Engagement: Proceedings of the Copenhagen Symposium*, eds. R. Desjardins and T. Schuller (Brussels: Organisation for Economic Co-operation and Development, 2006), http://www.oecd.org/edu/country-studies/37425753.pdf (accessed February 26, 2013); W. Groot and H. Maassen van den Brink, "What Does Education Do to Our Health?," in Desjardins and Schuller, *Measuring the Effects*; B. Wolfe and S. Zuvekas, "Nonmarket Outcomes of Schooling," *International Journal of Educational Research* 27, no. 6 (1997): 496–501, http://www.irp.wisc.edu/publications/dps/pdfs/dp106595.pdf (accessed February 26, 2013).

2. National Institutes of Health, "Pathways Linking Education to Health," Weekly NIH Funding Opportunities and Notices, (Bethesda, MD: Author, 2003), http://grants.nih.gov/grants/guide/rfa-files/RFA-OB-03-001.html (accessed February 26, 2013).

3. M. Streepey et al., *The Fiscal Survey of States: An Update of State Fiscal Conditions, Spring 2012* (Washington, DC: National Governors Association and National Association of State Budget Officers, 2012) http://www.nasbo.org/sites/default/files/Spring%202012%20Fiscal%20Survey_1.pdf (accessed February 26, 2013).

4. Ibid.

5. J. Holahan et al., *The Cost and Coverage Implications of the ACA Medicaid Expansion: National and State-by-State Analysis* (Washington, DC: Henry J. Kaiser Family Foundation, November 2012), http://www.kff.org/medicaid/upload/8384.pdf (accessed February 26, 2013).

6. P. Muennig, *State-Level Health Cost-Savings Associated with Improvements in High School Graduation Rates* (Washington, DC: Alliance for Excellent Education, 2006). Calculation of dollars into 2012 dollars by Alliance staff using Consumer Price Index.

7. National Center for Education Statistics, "Table 11: Percentage of Persons 18 to 24 Years Old and 25 and Over, by Educational Attainment and State: 2000 and 2007–09," in *Digest of Education Statistics: 2011* (Washington, DC: Author, 2011), http://nces.ed.gov/programs/digest/d11/tables/dt11_011.asp (accessed March 16, 2013).

8. J. J. Heckman, J. E. Humphries, and N. S. Mader, The GED (Cambridge, MA: National Bureau of Economic Research, 2010), http://www.nber.org/papers/w16064.pdf?new_window=1 (accessed April 18, 2013).

9. Alliance for Excellent Education, "The High Cost of Dropouts: What the Nation Pays for Inadequate High Schools" (Washington, DC: Author, November 2011), http://www.all4ed.org/files/HighCost.pdf (accessed February 26, 2013).

10. Organisation for Economic Co-operation and Development, "OECD Health Data 2012—Frequently Requested Data," http://www.oecd.org/els/healthpoliciesanddata/oecdhealthdata2012-frequentlyrequesteddata.htm (accessed February 26, 2013).

11. G. F. Anderson et al., "Health Spending in the United States and the Rest of the Industrialized World," *Health Affairs* 24, no. 4 (2005): 903–14.

12. United States Census Bureau, "Income, Poverty and Health Insurance Coverage in the United States: 2011," news release, September 12, 2012, http://www.census.gov/newsroom/releases/archives/income_wealth/cb12-172.html (accessed February 26, 2013).

13. Kaiser Commission on Medicaid and the Uninsured, "Who Are the Uninsured? A Consistent Profile Across National Surveys" (Washington, DC: Henry J. Kaiser Family Foundation, 2006), http://www.kff.org/uninsured/upload/7553.pdf (accessed February 26, 2013).

14. Ibid.

15. U.S. Department of Health and Human Services, "How Can I Get Medicaid?," http://www.healthcare.gov/using-insurance/low-cost-care/medicaid/#howmed (accessed February 26, 2013); Centers for Medicaid and Medicare Services, "Eligibility," http://www.medicaid.gov/AffordableCareAct/Provisions/Eligibility.html (accessed March 18, 2013).

16. A. J. Davidoff and G. Kenney, *Uninsured Americans With Chronic Health Conditions: Key Findings From the National Health Interview Survey* (Washington, DC: Urban Institute, 2005).

17. J. Hadley, *Sicker and Poorer: The Consequences of Being Uninsured* (Washington, DC: Urban Institute, 2002).

18. M. Gladwell "The Moral-Hazard Myth: The Bad Idea Behind Our Failed Health-Care System," *New Yorker*, August 29, 2005, 44–49.

19. M. Buettgens and C. Carrol, *Eliminating the Individual Mandate: Effects on Premiums, Coverage, and Uncompensated Care* (Washington, DC: Urban Institute, 2012), http://www.urban.org/UploadedPDF/412480-Eliminating-the-Individual-Mandate.pdf (accessed March 17, 2013).

20. Ibid.

21. B. Goesling, *The Rising Significance of Education for Health*, report prepared for the annual meeting of the Population Association of America, April 2005, Philadelphia.

22. P. Muennig, *Health Returns to Education Interventions*, paper prepared for the Symposium on the Social Costs of Inadequate Education, October 24–25, New York; M. A. Winkleby et al., "Socioeconomic Status and Health: How Education, Income, and Occupation Contribute to Risk Factors for Cardiovascular Disease," *American Journal of Public Health* 82, no. 6 (1992): 816–20.

23. Muennig, *Health Returns*.

24. M. D. Wong et al., "Contribution of Major Diseases to Disparities in Mortality," *New England Journal of Medicine* 347 (2002): 1585–92.

25. Alliance for Excellent Education, "Healthier and Wealthier: Decreasing Health Care Costs by Increasing Educational Attainment" (Washington, DC: Author, November 2006), http://www.all4ed.org/files/archive/publications/HandW.pdf (accessed May 23, 2013).

26. For information on randomized controlled trials that are similar to (but separate from) those conducted to inform this report, see P. Muennig et al., "Effects of a Prekindergarten Educational Intervention on Adult Health: 37-Year Follow-Up Results of a Randomized Controlled Trial," *American Journal of Public Health* 99, no. 8 (2009): 1431–37; and P. Muennig et al., "The Effect of an Early Education Program on Adult Health: The Carolina Abecedarian Project Randomized Controlled Trial," *American Journal of Public Health* 101, no. 3 (2011): 512–16.

27. M. Gold et al., eds., *Cost-Effectiveness in Health and Medicine* (New York: Oxford University Press, 1996).

28. National Center for Health Statistics, *National Health and Nutrition –Examination Survey 2009–2010* (Atlanta, GA: Centers for Disease Control and Prevention), http://www.cdc.gov/nchs/nhanes.htm (accessed June 25, 2012).

29. National Center for Education Statistics, "Digest of Education Statistics: Table 11" (Washington, DC: Author, 2011) http://nces.ed.gov/programs/digest/d11/tables/dt11_011.asp (accessed October 21, 2012).

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